

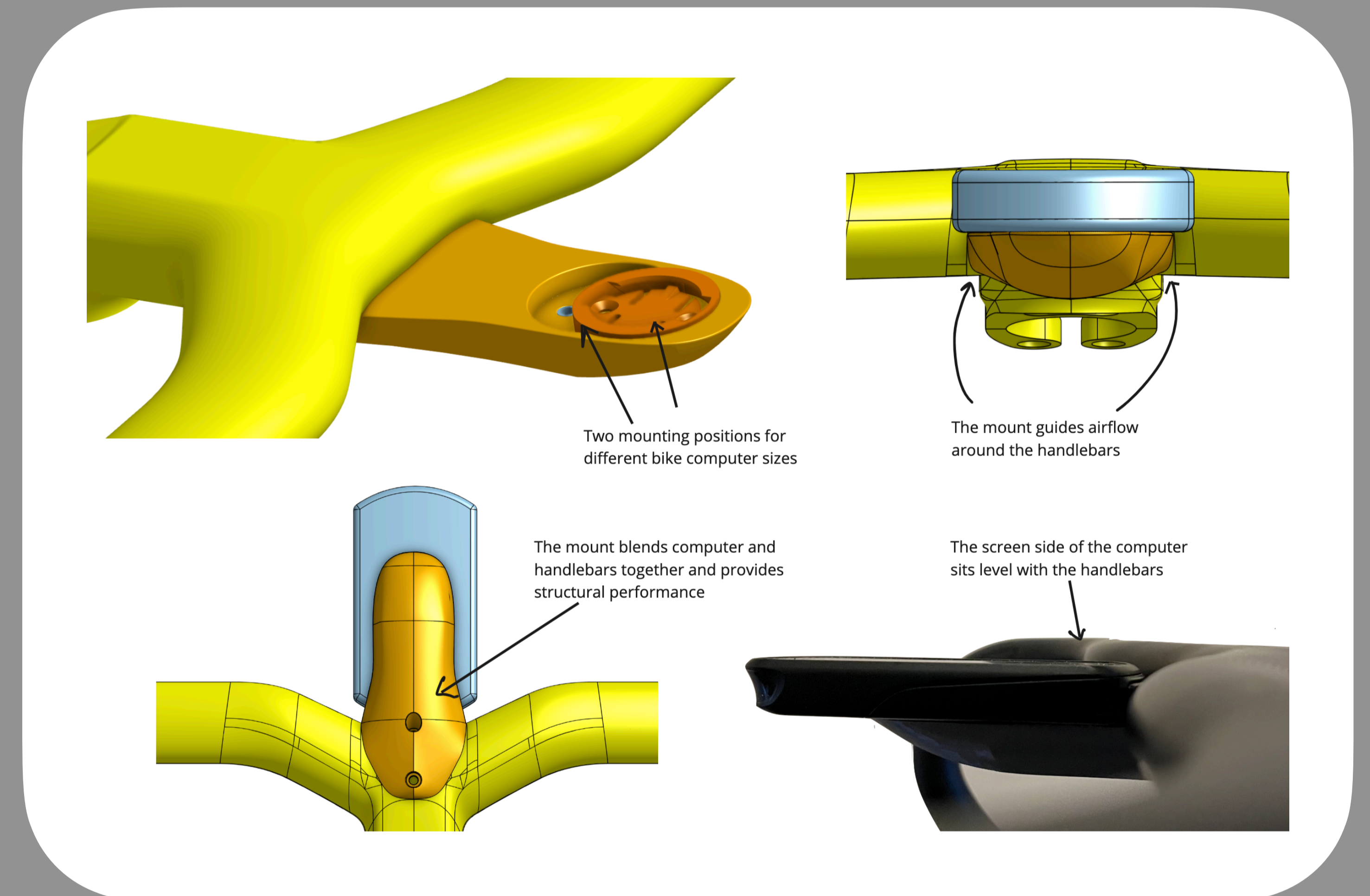
An integrated bicycle computer mount for aerodynamic handlebars

Development of a lightweight and aerodynamic solution for integration of bike computers into aerodynamic handlebars of professional road cycling bicycles.

The goal of this graduation thesis is to design a bicycle computer mount (BCM) that connects bike computers with road cycling handlebars in a visually appealing, and aerodynamic way. Initiated between Delft University of Technology and a leading sports equipment company, the project addresses the evolving needs of cyclists regarding maximum integration and aerodynamic optimisation of their material.

Through context research, user research and aerodynamic research, ideas were generated and formed into concepts. From those concepts the most promising was selected to further develop into a detailed design. This design was then validated with vibration tests, computational fluid dynamics (CFD) and finite element analysis (FEA).

The final design is a one-piece thermoplastic BCM that is injection moulded shown on the right in figure 1. It is produced from carbon-reinforced nylon (CF/PA12) to optimise weight and structural performance. The final weight of the BCM is 38 grams including hardware. A physical prototype was made for validation with different computers and vibration testing.



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Committee

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